our yellow hens, which was for two years a normal Yellow except for a few red feathers on the rump, moulted out during 1951 with all her plumage spotted with red feathers, particularly on the wings.'' The red on the rump is normally present only in the male of this species.

GENERAL COMMENTS

Of the variant plumages described here, those in the first group cannot be regarded either as xanthic plumages or as carotenoid variants, but are simply non-melanic examples of schizochroism. This was recognised by Van Tyne and Berger (1960) who described xanthism as a form of schizochroism, giving the non-melanic form of the Budgerigar as an example.

The remaining four examples all represent variants in which the yellow or red pigments present differ from the normal in quantity, distribution, or appearance. The first three might be described as examples of ''carotenism'' if this term is used in the rather vague and loose sense in which the terms albinism and melanism are usually applied; but it is probably true to say that these are not covered by current terminology.

The schizochroic variants described could potentially occur in any species having both melanic and non-melanic pigments. The carotenistic variants are either accidents of nutrition, or else they represent new mutations within the species concerned.

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The differences between *Pitta guajana guajana* and *P.g.affinis*

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On an earlier occasion I published a paper[1] on this subject. After studying some more material I add a few notes.

Voous[2] identified a bird of this species from Mt. Slamet (western part of Central Java) as West Java's *affinis*. The sex of this bird is not mentioned but on account of the wide breast band (6 mm.) I am inclined to consider it a male. It is classified as *affinis* because of the narrow breast band and the yellowish-buff under parts.

As pointed out in my earlier paper I do not think it justified to consider both these characters as of subspecific value. In the subspecies *affinis* the variation in the width of the breast band is important and this seems also to be the case in birds belonging to the nominate race because in the three females before me this band varies from 2.5 to 5 mm.

Birds belonging to this species appear to vary considerably in the ground-colour of the under parts. The remarks of Hartert that in the female this colour is not white but yellowish-buff proves not to be correct, because in the females too there is much variation on this point. Moreover it is of some importance to point out that the colour impressions one gets from the under parts are highly influenced by the direction whence the light falls on the skin. In the two females before me belonging to *guajana*, the two of *affinis* and two perhaps intermediate birds from Central Java, this tint varies from nearly white to buffy light brown in the two birds from Central Java and also the two specimens secured by me in Udjung Kulon (West Java)—which both had very small ovaria—vary importantly in this respect. The breast band in these last mentioned four birds runs from 3 to 6 mm.

As in the males and females the nearly white colour on the chin, throat and foreneck varies considerably as is very noticeable in both females from Central Java mentioned above.

On the upper surface too there are apparently no other variations than individual ones. There is much difference in the colour of the mantle, back and wing-coverts. Some very dark males originate from Bogor and an extremely light male comes from Indramaju: both localities are situated in West Java. The Udjung Kulon females differ importantly too in this respect but one of them—with very dark upper parts—is perhaps not fully adult: it shows dark spots on the pileum and a little brown in some white patches on the wing-coverts.

There is furthermore some variation in the extent and tint of the yellow superciliary streak and in the colour of the upper tail and coverts; also the quantity of white on the wings may vary considerably.

Post-mortem changes in the plumage of these birds seem to be of little importance, provided the material is not preserved in liquids, for the dark skins collected in 1919 and in 1938 near Bogor and Djakarta do not differ much from the dark bird recently shot in Udjung Kulon and the light female from this last area agrees well with a similar bird secured near Madiun in 1935.

Size differences of some importance within the same subspecies could not be established in our material but it is again evident from the few measurements given below that birds of both sexes of *guajana* average larger than *affinis*, which confirms my earlier findings.

A female obtained in the neighbourhood of Semarang (Central Java) with a wing length of 112 mm. seems to belong to the nominate race, known from East Java. A second female from East Java has a wing of 108 mm. but a rather heavy bill, a third and fourth female from Central Java, with a wing size of 107 and 108 mm. seem to be somewhat intermediate between both these subspecies, though perhaps closer to *guajana*.

The discrepancies between the figures given below and those published in my earlier paper, are caused by the fact that the wings were now measured pressed down along the ruler and formerly in the natural position, whereas the bill was now measured along the culmen and formerly from gape to tip.

Measurements: (*in mm.*)

♂♂ Wing; *guajana:* 109, 111, 111, 112, 115; *affinis:* 104, 105, 106, 107, 109 mm.

Tail; *guajana:* 62, 66, 68, 68, 75; *affinis:* 67, 69, 71, 74, 75 mm.

Culmen; *guajana:* 23, 23.1, 23.5, 23.5; *affinis:* 20.5, 20.5, 21.5, 22, 23.9 mm.

Max., min. and average measurements:

	guajana	*affinis*
Wing:	109–115	104–109
	111.60	106.20
Tail:	62–75	67–75
	67.80	71.20
Culmen:	23–23.5	20.5–23.9
	23.28	21.68

♀♀ Wing; *guajana:* 108, 112; *affinis:* 102, 104 mm.

Tail; *guajana:* 61, 62; *affinis:* 58, 63 mm.

Culmen; *guajana:* 22.1, 20; *affinis:* 19, 22.8 mm.

Max., min. and average measurements:

	guajana	*affinis*
Wing:	108, 112	102, 104
	110	103
Tail:	61, 62	58, 63
	61.50	60.50
Culmen:	22.1, 20	19, 22.8
	21.05	20.9

References:

[1] Hoogerwerf, A. Over het verschil tussen *Pitta g. guajana* en *Pitta guajana affinis; Zoölogische Mededelingen*, 28, 1947, p. 267/70.

[2] Voous, K. H. Notes on a collection of Javanese birds; *Limosa*, 21, 1948, p. 91.